(ACE Paper 13/2003)
For advice

Report on the 77th Environmental Impact Assessment Subcommittee Meeting

Introduction

At its meetings held on 24 March 2003, the Environmental Impact Assessment (EIA) Subcommittee considered the EIA reports on the following projects -

(a) Upgrading and expansion of San Wai Sewage Treatment Works and expansion of Ha Tsuen Pumping Station; and

(b) Proposed submarine gas pipelines from Cheng Tou Jiao liquefied natural gas receiving terminal, Shenzhen to Tai Po gas production plant, Hong Kong.

Advice Sought

2. Members are requested to advise whether the above two EIA reports should be endorsed and to note the suggestion that the issue of total water management should be discussed at future meetings of the full Council.

Views of the Subcommittee

Upgrading and expansion of San Wai Sewage Treatment Works and expansion of Ha Tsuen Pumping Station
(ACE-EIA Paper 1/2003)

Need for the project

3. The objectives of this project is to expand the sewage facilities at San Wai Sewage Treatment Works (San Wai STW) and Ha Tsuen Pumping Station (Ha Tsuen PS) to cater for the projected increase of population in North

West New Territories (NWNT) and other planned developments in Yuen Long and Kam Tin areas and the potential developments in Hung Shui Kiu New Development Area (HSKNDA). Another objective is to upgrade the sewage treatment facilitates at San Wai STW from preliminary treatment to Chemically Enhancements Primary Treatment (CEPT) plus disinfection for the attainment of the Water Quality Objectives.

Description of the project

4. The project comprises the following components-

(a) expansion of the capacity of the preliminary treatment works at San Wai STW from 164,000m^3/d to 246,000 m^3/d;
(b) upgrading of the preliminary treatment level at San Wai STW to CEPT plus disinfection;
(c) construction and operation of an emergency bypass culvert from San Wai STW to nearby drainage channel to provide an alternative discharge route for San Wai STW in an emergency event when the NWNT effluent tunnel is out of operation;
(d) rearrangement of the existing preliminary treatment facilities at San Wai STW to conform to the upgraded treatment works layout; and
(e) expansion of the pumping capacity of the Ha Tsuen PS from 164,000 m^3/d to 246,000 m^3/d.

Views and recommendations of EIA Subcommittee

5. Members' discussion at the meeting focused on the loss of the enhanced fishpond in phase 2 of the project; the treatment level of the project; the impact of the project on the water quality of Deep Bay; the noise impact during the construction stage; land contamination; the alignment of the emergency bypass culvert and the materials used for the culvert and the reuse of the treated effluent.

Loss of the enhanced fishpond

6. A Member expressed concerns that the enhancement of the remaining fish pond in phase 1 but losing it in phase 2 might cause more disturbance to the environment than no enhancement at all in phase 1. In

response, the project proponent team pointed out that phase 2 of the project would largely depend upon the programme and scale of the HSKNDA and the enhanced fishpond might last for some time. Hence, it was considered worthwhile to carry out the enhancement in phase 1. When the programme and scale of HSKNDA was confirmed, a review of the implementation strategy would be conducted for phase 2 of the project. In addition, centralized ecological compensation areas under HSKNDA would be provided for the loss of habitats in the region, including the two fish ponds lost in the expansion work.

Treatment level

7. A Member suggested reserving some space in the project area for implementing the Biological Aerated Filter System which was under trial in the Stonecutters Island SWT in the event that further upgrading of the treatment facility at San Wai SWT was necessary. In response, the project proponent team explained that based on the consultant's water quality analysis, the upgrading of the facility to CEPT level would be able to treat the effluent to the required standard. In addition to CEPT, the effluent would be disinfected by using ultra violet light. The water quality of the treated effluent would be closely monitored and immediate actions would be taken if it were found to be below the required standard.

Deep Bay

8. As regards the concerns of a Member on the impact of the project on the water quality of Deep Bay, the project proponent team explained that the EIA was made based on the worst case scenario projected in 2016 and had included the possible cumulative impacts from the Shenzhen River and Pearl River. Furthermore, the treated effluent of the project would be discharged into Lung Kwu Tan instead of Deep Bay. In fact, the project would improve the water quality in Deep Bay and areas near Northern Lantau Island.

Noise impact during construction stage

9. On the noise impact during the construction stage, the project proponent team pointed out that with the use of quiet plants and temporary noise barriers, the noise impacts of the project on the nearest sensitive receivers were within the acceptable level. Construction work would be restricted to day-time (7:00a.m. to 7:00p.m) to further reduce the noise impact.

Land contamination

10. A Member expressed concerns about possible land contamination, as some lands previously used as vehicle repair workshops would be resumed for the project. The project proponent team explained that assessment on soil contamination would be conducted once those areas were resumed. Any land contamination problem would be dealt with immediately and in any event, such problem, if any, would be very localized and could be handled offsite without affecting the progress of the project.

The alignment of the emergency bypass culvert and waste generation

11. As regards the alignment of the emergency bypass culvert, the project proponent team confirmed that to minimize the impact associated with the construction work, the proposed emergency bypass culvert would be constructed at the same time as the infrastructure works of the proposed HSKNDA. Hence, the exact alignment of the proposed emergency bypass culvert would be subject to the modifications of the HSKNDA project and the proposed alignment would be submitted to the Subcommittee for information once it is finalized. The project proponent also indicated that they would consider carefully in the detailed design stage the design and the material used for the emergency bypass culvert to reduce generation of waste as far as possible.

Reuse of the treated effluent

12. The project proponent pointed out that the issue of reuse of the treated effluent was a broad-term subject and Members' views would be taken into account together with other considerations, such as the prevalent policy and cost etc. However, whether the treated effluent could be reused for other purposes would also depend on the situations of individual treatment plants.

Conclusion

13. The Subcommittee agreed that it would recommend the EIA report to the full Council for endorsement without conditions. In connection with the proposal to reuse the treated effluent, the Subcommittee suggested that the subject of total water management should be discussed at future meetings of the full Council.

Proposed submarine gas pipelines from Cheng Tou Jiao liquefied natural gas receiving terminal, Shenzhen to Tai Po gas production plant, Hong Kong

(ACE-EIA Paper 2/2003)

Need for the project

14. The Hong Kong and China Gas is reviewing the reliability and flexibility of their existing system to meet expected future demand. The proposed gas pipeline system would be used for supplying natural gas to the gas production plant at Tai Po as an alternative feedstock to producing gas at the existing production plant at Tai Po.

Description of the project

15. The project involves the construction and operation of a gas receiver facility at the existing Tai Po gas production plant and twin gas pipelines to supply gas from a liquefied natural gas receiving terminal at Cheng Tou Jiao, Shenzhen to the gas receiver facility at Tai Po. The section of the submarine gas pipelines in Hong Kong waters is 28.5km in length and will be laid through Tolo Harbour, Tolo Channel and Mirs Bay. The project is a designated project under Item H 1, Schedule 2 of the EIA Ordinance. The construction of the project is scheduled to commence in late 2004 and to be completed by the end of 2005.

Views and recommendations of the EIA Subcommittee

16. Members' discussion at the meeting focused on the maintenance of the submarine pipelines; the possible danger of red tide; the impact of the project on the water quality of fish culture zones in the northeastern waters of Hong Kong; compensation for fishermen affected by the project; the implications of jetting and dredging works and whether the requirement for the latter could be reduced to minimize the impact on Tung Ping Chau; the impacts on corals at Fung Wong Fat and the EIA for the section of the pipelines in Mainland waters and environmental monitoring.

Maintenance of the submarine pipelines

17. On the maintenance of the submarine pipelines, the project proponent team explained that the designed life of the pipelines was 50 years.

Hence, a very good corrosion prevention system would be in place to protect the pipelines. Furthermore, regular inspection would be done using an intelligent pipe inspection gauge. Such inspection would be conducted within the pipes for internal pipe condition monitoring but very minimal maintenance work would be required.

Red tide

18. On Members' concerns about the impact of the project on water quality and the possible occurrence of red tide, the project proponent team pointed out that they had conducted a water quality modeling with wet and dry seasons simulations of water quality conditions and taking into account the impacts from suspended sediments, the release of nutrients and its effects on water quality and the likelihood of algae bloom. According to the modeling results, the Water Qualities Objectives would not be exceeded as a result of the jetting and dredging operations and an algae bloom was unlikely. Past experience showed that red tides in the Tolo Harbour usually occurred in springtime. Hence, the jetting and dredging works would avoid as far as possible the sensitive period for red tide and minimize the impacts on the water quality.

Water quality of fish culture zones

19. On the impacts of the project on fish culture zones, the project proponent team pointed out that a detailed fishery impacts assessment and water quality assessment had been conducted. The assessments included the effects of the jetting and dredging works on suspended solids, dissolved oxygen and nutrients and their impacts on sensitive receivers including marine parks, fish culture zones, coral communities, etc. The results of the assessments had been endorsed by AFCD and details of the findings are given in Tables 4.7 - 4.9 of the EIA Report. Even with no mitigation measures in place, the impacts would still be within the Water Quality Objectives. However, the project proponent had consulted fishermen in the area and having regard to their views, silt curtain would be used at the Tai Po Landing Point in the early phase of the jetting work to further lower the impacts on water quality.

20. The project proponent further explained that the routing of the pipelines would avoid areas of high ecological value and fishery areas and the use of jetting for laying the majority of the pipes was one of the mitigation measures taken to reduce the impacts on water quality. The duration of the

jetting and dredging works would be very short and the speed of the works would be controlled to reduce the impacts. With the controlled speed of the project, the distance of the jetting and dredging works from sensitive receivers and the short duration, the impacts on fishery would be acceptable and the project would not cause exceedances of the Water Quality Objectives. Furthermore, there would be a robust monitoring and audit programme and the action levels were much stricter than the Water Quality Objectives so that early action would be taken in case the effects exceeded those predicted by the water quality model.

Compensation for fishermen affected by the project

21. On the issue of compensation for fishermen who are affected by the project, the project proponent confirmed that they would liaise with the Government on compensation matters if fishermen would suffer loss as a result of the project.

Jetting and dredging

22. On the questions of why jetting and dredging were used for different sections of the submarine pipelines and whether the growth in marine traffic had been taken into account, the project proponent team explained that since dredging would require off-site disposal of the dredged mud, its impact on water quality would be greater. On the other hand, sediments disturbed by jetting works would settle rapidly back onto the seabed and the suspended solid elevations would be of shorter duration. Not withstanding the above, dredging was required for certain sections of the pipelines which needed a wider trench for protection against accidental anchor drop and drag by seagoing vessels. A 5m wide trench covered with layers of armour rocks along the pipelines was needed and jetting could not achieve the width required. Dredging was therefore needed for the section of the pipelines which crossed high intensity shipping areas in Mirs Bay and the section on the Shenzhen side. The requirement was based mainly on projected marine traffic figures and risk assessment. According to the requirements of the Shenzhen Government, the scale of the dredging work near the Shenzhen side could not be reduced. At the same time, Members noted that the laying of the pipelines through tunneling was structurally not feasible. Also, the proposed alignment of the pipelines had the least impacts on the environment. In deciding the alignment of the pipelines, safety and the environment were the main considerations rather than the cost.

Coral sensitive receiver at Fung Wong Fat

23. On the elevation of the suspended sediment concentrations to as high as 8.73 mg L^{-1} above ambient in wet season at Fung Wong Fat as stated in Table 4.7 of the EIA report which might affect the coral sensitive receiver there, the project proponent agreed to consider the use of a silt curtain during the jetting works at Fung Wong Fat if jetting occurs within wet season.

EIA for the section of the pipelines in Mainland waters and environmental monitoring

24. As regards the EIA for the section of the pipelines in Mainland waters, the project proponent team pointed out that a qualified consultant in the Mainland had been appointed to undertake EIA study. The EIA was in the final stage and the draft report was being amended after submission to the State Oceanic Administration in November 2002. The project proponent would have overall control of the construction as well as the monitoring and auditing work of the whole project. When dredging works on the Mainland side are within 1 km of the HKSAR water boundary, the independent environmental checker in Hong Kong would be notified and would start the water quality and coral monitoring work in Tung Ping Chau. The project proponent would ensure that there would be close liaison between the contractor in the Mainland and the EM&A team in Hong Kong.

Conclusion

25. The Subcommittee agreed that it would recommend the EIA report to the full Council for endorsement without conditions.

EIA Subcommittee Secretariat
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